M.Sc. Botany (2021 -2022)

Teaching Plan

Semester : I **Major Core I**

Name of the Course: Plant Diversity I - Algae, Fungi, Lichens and Bryophytes

Subject Code: PB2011

Unit	Module	Topics	Lecture hours	Learning outcome	Pedagogy	Assessment/ Evaluation
1. **ALGAE – GENERAL CHARACTERS**						
	1	General characters of algae including similarities and diversities ; Classification of algae by Fritsch (1954); Thallus organization in algae (Seminar)	4	To identify and categorize algal organisms	Lecture	Through microscopic examination, class test, quiz, diagrammatic representation, Class test
	2	Life-cycle patterns and alternation of generations	3	To understand the different life cycle patterns	Lecture, Illustration	
	3	Detailed study on occurrence, habitat, structure, reproduction and life history of Cyanophyceae and Chlorophyceae	4	To correlate the different algal organisms between the two families	Lecture, Demonstration with live specimens	
II ALGAE – LIFE HISTORY						
	1	Detailed study on occurrence, habitat, structure, reproduction and life-history of	4	To correlate the different algal organisms	Lecture, Demonstration with live specimens	Microscopic Examination, Test and Quiz

		Xanthophycea e,Bacillarioph yceae		between the two families		
	2	Phaeophyceae (Seminar), Rhodophyceae (Seminar)	4	To correlate the different algal organisms between the two families	Lecture, Demonstratio n with live specimens	
	3	Fossil algae	4	To identify the fossil specimens	Lecture, Microscopi c Slides	
	4	Economic importance – Role of algae in soil fertility; Algal blooms; symbiotic associations; nitrogen fixation ; Pollution indicators; SCP (Seminar)	4	To understand the role of algae in different fields	Lecture	
III FUNGI – GENERAL CHARACTERS AND LIFE HISTORY						
	1	General characters of fungi; Classification of fungi proposed by C.J Alexopoulos and C.W Mims (1979)	4	To identify and categorize the fungal organisms	Lecture	Through microscopic examination and Continuous Internal Assessment I (CIA -I).
	2	Homothallism an d Heterothallism in fungi; Parasexuality in fungi(Seminar)	4	To understand the reproduction strategies in fungi	Lecture, PPT	

	3	An overview and life history of Zygomycetes, Ascomycetes, Basidiomycetes, Deuteromycetes. Economic importance of fungi	5	To correlate the different fungal organisms between the classes	Lecture, Microscopic Slides, Live specimens	
IV **LICHENS**						
	1	General account of Lichens; Classification by Miller (1984)	4	To identify and categorize lichens	Lecture, PPT	Microscopic examination, test, open book test and quiz
	2	Structure, nutrition and reproduction of the three major groups – Crustose, Foliose and Fruticose; Economic importance of Lichens	5	To interpret the different groups of lichens	Lecture, Microscopic Slides, Live specimens	
V BRYOPHYTES						
	1	Classification, Distribution, Origin (including fossil evidence), Primitive and advanced features of Bryophytes	3	To identify and categorize the bryophytes	Lecture, Illustration	Class test, Question and Answer session, Diagramatic representation, Discussion, Continuous Internal Assessment I (CIA -II).
	2	Evolution of gametophytes and sporophytes; Ecological adaptations; Economic importance (Seminar)	4	To understand the evolution and importance of bryophytes	Lecture, Illustration	
	3	A comparative study of	4	To correlate the	Lecture,	
		the morphological and anatomical features of Polytrichales, Bryales, Marchantiales, Jungermanniales and Anthocerotales.		different bryophytes between the orders	Microscopic slides, Live specimens	

Course Instructor: Dr. Celin Pappa Rani J HOD: Dr. C. Jespin Ida

Semester: I

Name of the Course: Microbiology **Major Core II**
Subject code: PB2012

Unit	Module	Topics	Lecture hours	Learning outcome	Pedagogy	Assessment/ Evaluation
I BACTERIA						
	1	Scope and milestones of Microbiology, General properties of bacteria; Morphology and fine structure of	3	To understand the basic structure of bacteria	Lecture, chart	Microscopic observation, Class Test, Group Presentation.

		Bacteria				
	2	Classification of bacteria as per Bergey's Manual of Systematic Bacteriology	3	To categorize the bacterial species	Lecture, PPT	
	3	Bacterial Nutrition, Growth curve; Sterilization and disinfection; Culture media and its types	3	To know the growth dynamics and culture patterns of bacteria	Lecture, Illustration, Hands on training	
	4	Methods of isolation - Pure culture; Identification of bacteria(Seminar)	4	To maintain pure culture and identification of Gram positive and Gram negative bacteria	Lecture, Models	
II VIRUS AND ANTIMICROBIAL DRUGS						
	1	General properties of Viruses; (Seminar) Classification and nomenclature; Structure of virus; Cultivation of virus;	4	To categorize viruses and cultivate them	Lecture	Diagramatic representation, Question – answer session, class test
	2	Morphology of bacteriophages; life cycle – Lytic cycle and Lysogenic cycle	3	To understand the basic structure and life cycle of bacteriophages	Lecture, Charts	
	3	General properties of Actinomycetes and Mycoplasma	4	To know about the characters of Actinomycetes	Lecture	

				and mycoplasma		
	4	General characteristics of antimicrobial drugs; Antibacterial drugs – Sulfonamides, Penicillins; Drug resistance	4	To evaluate the different antimicrobial drugs	Lecture , PPT	
III MICROBIAL FLORA OF SOIL, WATER AND MILK						
	1	Microbial flora of soil - Significance of soil microorganisms. Microbial flora of municipal water and its Purification	4	To know the significance of bacteria in soil and water	Lecture, Group Discussi o n	Continuous Internal Assessment I (CIA -I), Multiple choice questions
	2	Bacteriological examination of drinking water; Microbial flora of milk - Pasteurization of milk; Phosphatase Tests for grading milk sample (Seminar)	3	To analyze the bacteria present in milk and water	Lecture , Lab test	
	3	Food spoilage by	4	To know about the	Lecture,	
		bacteria – *Clostridium botulinum,* (Seminar) *Salmonella sps, Shigella sps, Staphylococcus sps*		food spoilage organisms	PPT	
IV IMMUNOLOGY						

	1	Immunity – Definition and its types; Properties of Antigens; Antibodies – Basic structure and its types	3	To understand the properties of antigens and antibodies	Lecture , PPT	Lab tests, Class test, open book test.
	2	Strength of Antigen - Antibody interactions; Agglutination reactions; Precipitation reactions	3	To learn antigen-antibody interactions	Lecture, Experim e ntal learning	
	3	Cytokines - Properties and attributes; Monoclonal antibody production	3	To know about cytokines and monoclonal antibodies	Lecture, Group discussio n	
	4	Immunodiffusion; ELISA (Seminar); Immune respons e during bacterial (Tuberculosis), parasitic (Malaria) and viral (HIV) infections.	3	To apply the techniques to detect the antigens	Lecture , PPT	
V PLANT PATHOLOGY						
	1	Classification of plant diseases - Symptoms - Infection process - Host parasite interaction - Defense mechanisms in plants	3	To identify the plant pathogens	Lecture	Class tests, Group discussions, Continuous Internal Assessment II (CIA -II).

	2	Disease control methods - Physical, chemical, Cultural and Biological - Integrated disease management.	2	To understand the disease control strategies	Lecture, PPT	
	3	Detailed study of the plant diseases- Citrus	3	To know about different plant	Lecture, Video Clippings	
		cancer, White rust disease, Blast of rice, Red rot of Sugercane (Seminar), Little leaf of Brinjal		diseases		

Course Instructor: Dr. J. Albino Wins HOD: Dr. C. Jespin Ida

Semester : I Major Core III

Name of the Course : Plant Anatomy and Embryology

Subject code : PB2013

Unit	Module	Topics	Lecture hours	Learning outcome	Pedagogy	Assessment/ Evaluation
I INTRODUCTION						
	1	Introduction to Developmental Botany- Nuclear- Cytoplasmic interaction	3	To learn the basics of Developmental Botany	Lecture, Charts	Tests, Discussions, Group presentations,

	2	Division-Differentiation-Polarity and Symmetry (Seminar)	3	To differentiate about Polarity and Symmetry	Lecture , Charts	Class test.
	3	Organization of Shoot Apical Meristem (SAM) and Root Apical Meristem (RAM)	3	To understand the organization of SAM and RAM	Lecture, Question – Answer sessions	
	4	Vascular cambium-origin, structure and seasonal activity	3	To know about Vascular cambium	Lecture , PPT	
II COMPLEX TISSUE AND SECONDARY GROWTH						
	1	Xylem, Phloem and their elements-primary and secondary structures, phylogenetic trends and specialization of xylem and phloem	4	To differentiate the primary and secondary structures of Xylem and Phloem	Lecture , PPT	Class test, Quiz, Group discussions
	2	Secondary growth-Periderm- structure-development of lenticels (Seminar)	3	To know about the Secondary growth patterns	Lecture, Illustration	
	3	Anomalous secondary growth-Bougainvillea, Bignonia, Achyranthes and Dracaena	4	To differentiate the Anomalous secondary growth of different plants	Lecture , Models	
III WOOD ANATOMY						
	1	Wood anatomy-physical, chemical and mechanical properties. Defects in wood-natural defects, knots and defects due to diseases	3	To know the basics of wood anatomy	Lecture	Class tests, Multiple choice questions, Quiz, Continuous Internal Assessment I

	2	Reaction wood- Tension and Compression wood- Durability of wood (Seminar)	4	To understand about the Reaction wood	Lecture , Models	(CIA -I).
	3	Ontogeny of dicot and monocot leaves. Differentiation of epidermis with special reference to stomata and trichomes	4	To differentiate epidermis with stomata and trichomes	Lecture , Charts	
IV MICROSPOROGENESIS AND MEGASPOROGENESIS						
	1	Microsporogenesis Pollen morphology- pollen wall- pollen development- pollen dimorphism- pollen storage, pollen allergy. - Pollen- Pistil interaction	5	To know about the Basics of Pollen morphology	Lecture, Charts and models	Assignment on different structures of pollen, Class test, Open book test.
		(Seminar)- structure of style- stigma and significance				
	2	Megasporogenesis. Different types of embryo sac development- fertilization- barriers of fertilization	5	To evaluate the different types of embryo sacs	Lecture, Group discussion s	
	3	Self-incompatibility- types, physiology and biochemistry, methods to overcome self-incompatibility	4	To understand about Self-incompatibilit y	Lecture	
V FERTILIZATION						

	1	Fertilization- changes, physiological and biochemical changes during maturation. Seed- seed coat development and specialization	4	To analyze the fertilization changes	Lecture, PPT, Group discussion	Short test, Discussion , Continuous Internal Assessment II(CIA - II).
	2	Endosperm- types- haustoria. Embryogenesis and organogenesis of dicot and monocot embryos	4	To differentiate the different types of endosperm	Lecture , Charts	
	3	Apomixis- Polyembryony- parthenocarpy (Seminar)	4	To evaluate the importance of apomixes, Polyembryony, parthenocarpy	Lecture , Models	

Course Instructor: Dr. N. Benit HOD: Dr. C. Jespin Ida

Semester : I Elective I(a)

Name of the Course : Marine Biology

Subject code : PB2014

Unit	Module	Topics	Lecture hours	Learning outcome	Pedagogy	Assessment/ Evaluation
I. MARINE HABITAT						
	1	Classification of marine habitat – pelagic – neritic and oceanic province, benthic – zonation – shore environment – muddy, rocky and sandy, waves and tides,	4	To understand the basics of marine habitat	Lecture	Group discussions, Quiz.

		deep sea bottom – pelagic deposits (Seminar)				
	2	Characteristics of marine habitat – physical parameters – temperature, illumination, specific gravity, pressure and buoyancy, ocean current	3	To know about the characteristics of marine habitat e	Lecture , PPT	
	3	Chemical constitutents – major and minor constituents, deep sea nodules. Plate tectonics – earthquakes and tsunami.	3	To be able to evaluate the causes and preventive measures of Plate tectonics	Lecture, Charts, Discussion	
II MARINE BIODIVERSITY						
	1	Marine biodiversity – phytoplankton – characteristics, sampling and measuring.	4	To understand the basics of Marine biodiversity	Lecture , PPT	Assignments on marine diversity, Group discussions, Quiz
	2	Marine bacteria, marine fungi, seaweeds and sea grasses (Seminar)	3	To evaluate the importance of marine organisms	Lecture, Illustrations	
	3	Energy relationship – primary production, grazing food chain, detritus chain and energy balance sheet	4	To be able to understand the Energy relationship	Lecture , Charts	
	4	Green house effect, Carbon pump	3	To evaluate the impact of Green house effect	Lecture, Illustrations	

III MARINE PRODUCTS						
	1	Marine products – Production and uses of Agar-agar, Alginates, Carrageenan; Marine lipids	4	To produce marine products	Lecture, Illustrations	Class tests, Question – Answer sessions, Continuous Internal Assessment I (CIA - I).
	2	Marine pharmacology – Bioactive compounds from marine organisms	4	To assess bioactive compounds from marine organisms	Lecture, PPT	
	3	Sea grasses – structure, reproduction and ecological roles (Seminar)	4	To know about sea grasses	Lecture, Charts	
IV MICROALGAE						
	1	Culture of microalgae – Open pond method, Photobioreactors, Batch culture, Continuous Culture	4	To acquire skills to culture microalgae	Lecture, PPT	Class tests, Case study on different pollutions in different areas, Open book test.
	2	Maintenance of culture – Stock culture and Sub culture; Commercial cultivation of seaweeds	4	To assess the maintenance of culture	Lecture, Illustration	
	3	Marine pollution – thermal pollution, oil pollution, heavy metal pollution, radioactive pollution ; Eutrophication (Seminar)	4	To analyse the impact of marine pollution	Lecture, Group discussions	
V MANGROVES						
	1	Mangroves - Structure, Reproduction and ecological roles (Seminar)	3	To understand about mangrove ecosystem	Lecture, PPT	Class tests, Question – Answer sessions, Group

	2	Present status of mangroves with special reference to Pitchavaram	3	To recall the status of mangroves in Pitchavaram	Lecture	discussions, Continuous Internal Assessment II (CIA -II).
	3	Salt marsh plants – Structure, Adaptations and ecological roles; Restoration of mangroves	3	To understand about Salt marsh plants	Lecture, PPT	
	4	Coral reefs – Formation,	3	To assess the	Lecture,	
		Types, Ecology, Species interaction and economic importance		importance of Coral reefs	Charts	

Course Instructor: Dr.J.Albino Wins HOD: Dr. C. Jespin Ida

Semester : **III** **Major Core VII**

Name of the Course : **Taxonomy of Angiosperms and Economic Botany**

Subject code : **PB1731**

Number of hours per week	Number of credits	Total number of hours	Marks
6	4	90	100

Course Outcomes

CO	Upon completion of this course the students will be able to :	PSO addressed	CL
CO- 1	Differentiate between natural and artificial system of classification	PSO – 2, PSO - 3	U
CO- 2	Apply sketches to identify the flora	PSO -2	Ap
CO- 3	Collect and prepare herbaria for future use	PSO - 2	C
CO -4	Record the rules and regulations framed by ICBN	PSO - 2	R
CO- 5	Interpreting biological knowledge in comparing and ranking plants	PSO - 2, PSO - 3	An
CO -6	Evaluation of plants by using dichotomous keys	PSO – 2	E

Teaching Plan

Total contact hours: 60

Unit	Module	Topics	Lecture hours	Learning outcome	Pedagogy	Assessment/ Evaluation
I CLASSIFICATION						
	1	Aim and scope of plant taxonomy – Systems of angiosperm classification; Linnaeus, Bentham and Hooker and Engler and Prantle, Merits and demerits of these classification	3	To categorize the classification of plant taxonomy	Lecture, PPT	Short test, Group discussions, Question – Answer session, Formative Assessment I.
	2	Taxonomic literatures –	3	To be aware of	Lecture,	

		floras, revisions, manuals, monographs and check lists		taxonomic literatures	Models	
	3	Identification and preparation of intended keys and bracketed keys	3	To be able to identify and prepare keys	Lecture, Models	
	4	Herbarium techniques (Seminar) – Types and functions of herbarium; Digital Herbarium	3	To know the different herbarium techniques	Lecture, Charts	
II NOMENCLATURE						
	1	Botanical nomenclature – ICN, Principles and Role of ICN, Rules – principle of priority, rejection of names, limitations in the principle of priority, typification, author citation, effective and valid publications	4	To understand the role and principle of ICN	Lecture	Short test, Assignment to learn the molecular markers
	2	Numerical taxonomy – principles, character coding, measurement of resemblance-cluster analysis, current trends in biosystematics	4	To be able to evaluate the importance of Numerical taxonomy	Lecture, PPT	
	3	Cladistics – phylogenetic approach of classification, species concept	4	To assess the approaches of Cladistics	Lecture, Models	
	4	Molecular markers as taxonomic tools – RAPD, RFLP, AFLP, ISSR (Seminar)	4	To critically analyze plants with molecular tools	Lecture, Video clippings	
III FAMILY DESCRIPTION						
	1	Objectives and importance of systematic botany; Systematic position, salient features, distribution, description and economic importance of Capparidaceae, Polygalaceae	3	To diagnose the features of different families		Quiz, Dissect and Display, Class test, Formative Assessment II.
	2	Caryophyllaceae, Tiliaceae	3	To diagnose the features of different families	Lecture, PPT , Field visit	
	3	Zygophyllaceae (Seminar)	2	To diagnose the features of the family	Lecture, PPT, Field visit	
IV FAMILY DESCRIPTION						
	1	Systematic position, salient features, distribution,	3	To diagnose the features of	Lecture, PPT ,	Quiz, Dissect and Display,

		description and economic importance of Rhamnaceae, Sapindaceae		different families	Field visit	Class test
	2	Passifloraceae, Sapotaceae	3	To diagnose the features of different families	Lecture, PPT , Field visit	
	3	Oleaceae, (Seminar) Boraginaceae	3	To diagnose the features of different families	Lecture, PPT , Field visit	
	4	Scrophulariaceae, Bignoniaceae	3	To diagnose the features of different families	Lecture, PPT , Field visit	
V FAMILY DESCRIPTION						
	1	Systematic position, salient features, distribution, description and economic importance of Verbenaceae, Nyctaginaceae	3	To diagnose the features of different families	Lecture, PPT , Field visit	Quiz, Dissect and Display, Class test, Formative Assessment III.
	2	Aristalochiaceae, Casuarinaceae	3	To diagnose the features of different families	Lecture, PPT , Field visit	
	3	Orchidaceae, Commelinaceae	3	To diagnose the features of different families	Lecture, PPT , Field visit	
	4	Araceae, Cyperaceae	3	To diagnose the features of different families	Lecture, PPT , Field visit	

Course Instructor: Ms. N. Benit HOD: Dr. C. Jespin Ida

Semester : III Major Core VIII

Name of the Course : Genetics and Molecular Biology

Subject code : PB1732

Number of hours per week	Number of credits	Total number of hours	Marks
6	4	90	100

Course Outcomes

CO	Upon completion of this course the students will be able to :	PSO addressed	CL
CO- 1	Understand the organization of cell organelles and genes	PSO – 2	U
CO- 2	Differentiate between mitochondrial DNA and chloroplast DNA	PSO - 2	U
CO- 3	Evaluate the dissociation and re-association kinetics of DNA	PSO – 2	An
CO -4	Construct different types of plasmids	PSO – 2, PSO – 3	C
CO- 5	Identify various types of operons	PSO -2, PSO – 3	R
CO -6	Analyze Transcription and Translation of Prokaryotes and Eukaryotes	PSO – 2, PSO - 5	An
CO - 7	Evaluate the problems in genetics	PSO – 2	E

Teaching Plan

Total contact hours: 60

Unit	Module	Topics	Lecture hours	Learning outcome	Pedagogy	Assessment/ Evaluation
I GENETICS						
	1	Contribution of Johann Gregor Mendel, T.H. Morgan, Karl Landsteiner; Mendel's law of heredity – Monohybrid and Dihybrid cross (Seminar)	3	To differentiate monohybrid and dihybrid crosses and solve the problems	Lecture, Problem based learning	Formative Assessment I, Discussion.
	2	Gene interaction – Dominant epistasis (12: 3:1), Recessive epistasis (9:3:4), Duplicate recessive genes (9:7), Duplicate dominant genes (15:1)	3	Able to solve the problems in gene interaction	Lecture, Problem based learning	
	3	Sex determination in plants - theories of sex determination; Sex linked characters (Seminar)	3	To distinguish the sex linked characters	Lecture, PPT	
	4	Mutation – Types of mutation, Detection of mutation	2	To assess the different mutations	Lecture, PPT	
II DNA AND GENETIC DISEASES						
	1	DNA- types (A, B, C & Z), Watson and Crick model of DNA, viral DNA, bacterial DNA	3	To differentiate the different types of DNA	Lecture, Charts	Diagrammatic representation, Short test.
	2	Mitochondrial (Seminar) and Chloroplast DNA	2	To distinguish Mitochondrial and Chloroplast DNA	Lecture, Models	

	3	Dissociation and re-association kinetics of DNA; cot value and its significance	3	To evaluate the dissociation and re-association kinetics of DNA	Lecture	
	4	DNA replication of prokaryotes and eukaryotes	2	To understand the replication process	Lecture, Video clippings	
	5	Genetic diseases – Sickle cell anemia, Cystic fibrosis, Duchennes muscular dystrophy	3	To identify and critically analyse genetic diseases	Lecture, Video clippings	
III GENETIC ENGINEERING						
	1	Damage and DNA repair mechanism – photo reactivation – excision repair - mismatch repair	3	To understand the repair mechanisms	Lecture, PPT	Short test, Question – Answer session, Group discussion, Formative assessment II.
	2	Genetic recombination - generalised and site specific; Lysogenic and lytic cycle; Bacterial Transformation,Transduction and Conjugation	3	To analyse the recombination patterns	Lecture, Models	
	3	Cloning vectors- plasmids, cosmids, phages, plasmids – characters of plasmids, types, copy number	3	To understand the basics of cloning vector	Lecture, PPT	
	4	pBR322(Seminar), pUC9, MI3, BAC,YAC, shuttle vectors, advantages of cloning vectors	3	To differentiate the different types of cloning vectors	Lecture, Charts	
IV TOOLS IN GENETICS						
	1	RNA – types; Transcription - Initiation, elongation, termination, post transcriptional events	3	To differentiate the types of RNA	Lecture	Quiz, Group discussions
	2	Genetic code, Wobble hypothesis; Translation – steps in translation	3	To understand the process of Translation	Lecture, PPT	
	3	Molecular tools for studying genes – Autoradiograhy (Seminar)	3	To acquire skills to operate molecular tools	Lecture, Operating the instruments	
	4	Liquid Scintillation counting, Phosphorimaging	3	To acquire skills to operate molecular tools	Lecture, PPT	
V **GENOMICS**						

	1	Fine structure of the gene; Transposons – Tn3, Tn5	3	To differentiate the types of transposons	Lecture, PPT	Multiple Choice Questions, Group discussions, Formative assessment III.
	2	Operon concept – lac operon, trp operon, Steps in gene cloning; Pros and Cons in gene cloning	3	To understand the concepts of operon	Lecture, PPT	
	3	Construction of genomic library; Construction of cDNA library	3	To construct the gene libraries	Lecture, Video clippings	
	4	Gene silencing; Human Genome Project (Seminar)	3	To evaluate the human genome project	Lecture, Video clippings	

Course Instructor: Ms. J.Albino Wins HOD: Dr. C. Jespin Ida

Semester : III Elective III (a)

Name of the Course : Forestry

Subject code : PB1733

Number of hours per week	Number of credits	Total number of hours	Marks
6	5	90	100

Course Outcomes

CO No:	Upon completion of this course the students will be able to:	PSO Address	CL
CO-1	Categorize the types of forests in Tamilnadu	PSO – 3	An
CO-2	Identify the reasons for degradation of forest	PSO – 3	R
CO-3	Summarize the methods in managing and conserving the forest	PSO - 2, PSO – 3	AP
CO-4	Understand the objectives, advantages and disadvantages of agroforestry	PSO – 3	U
CO-5	Determine the role of botanical gardens, zoos, national parks, and sanctuaries	PSO - 3, PSO – 5	U
CO-6	Evaluate the utilization of forest	PSO - 3	E

Teaching Plan

Total contact hours: 60

Unit	Module	Topics	Lecture hours	Learning outcome	Pedagogy	Assessment/ Evaluation
I TYPES OF FOREST						
	1	Forest – definition, role of forest; forest as a balanced ecosystem	3	To understand the role of forest	Lecture	Short test, Quiz, Formative assessment I.
	2	Types and distribution of (Champion and Seth's classification)	3	To categorize the types of forests	Lecture, PPT	
	3	Forest types in Tamilnadu (Seminar)– evergreen forest, deciduous and scrub jungle	3	To categorize the types of forests in Tamilnadu	Lecture, PPT	
II FOREST MANAGEMENT						
	1	Forest management and conservation	3	Able to understand the conservation strategies	Lecture	Assignment on forest mensuration
	2	Regeneration; tending operations; sustainable utilization of forest resources – forest organizations	4	To assess the utilization of forest resources	Lecture	
	3	Forest mensuration and remote sensing	3	To know the concept of remote sensing	Lecture, PPT	
	4	methods of measuring diameter, girth, height, and volume of trees	3	Differentiate the different methods of forest mensuration	Lecture, Video clippings	
	5	Geographic information systems for management (GIS) (Seminar)	3	To understand the concepts of GIS	Lecture	
III FOREST UTILIZATION						
	1	Forest utilization – harvesting, conservation, storage and disposal of wood in forest; major and minor forest products	3	To evaluate the utilization of forest	Lecture, PPT	Short test, Quiz, Formative assessment II.
	2	Forest based	3	To assess the	Lecture,	

		industries – paper and pulp industry, resin tapping and turpentine manufacture		importance of forest based industries	Powerpoint	
	3	Forest education in India (Seminar)	3	To know about forest education	Lecture	
IV FOREST DEGRADATION						
	1	Forest degradation – damage caused by fire, climatic factors and injuries by insects, plants, animals, and diseases	3	To understand the causes of forest degradation	Lecture, PPT	Quiz, Discussions
	2	Activities of man including encroachment and shifting cultivation	3	To know about the encroachment	Lecture	
	3	Measures to protect the forest damage caused by various factors (Seminar)	3	To assess the protective measures	Lecture, Charts	
V AGROFORESTRY						
	1	Agroforestry – objectives, advantages and disadvantages	3	To understand the basis of Agroforestry	Lecture	Quiz, Group Discussions, Formative assessment III.
	2	Energy plantations; recreational forestry	2	To assess the energy plantations	Lecture, PPT	
	3	Role of botanical gardens, zoos, national parks and sanctuaries in recreation	3	To evaluate the role of botanical gardens	Lecture, PPT	
	4	Conservation of wild life (Seminar)	3	To acquire skills in conserving wild life	Lecture, Video clippings	
	5	Social forestry	2	To evaluate the impact of social forestry	Lecture, PPT	

Course Instructor: Ms. L.Dyona HOD: Dr. C. Jespin Ida